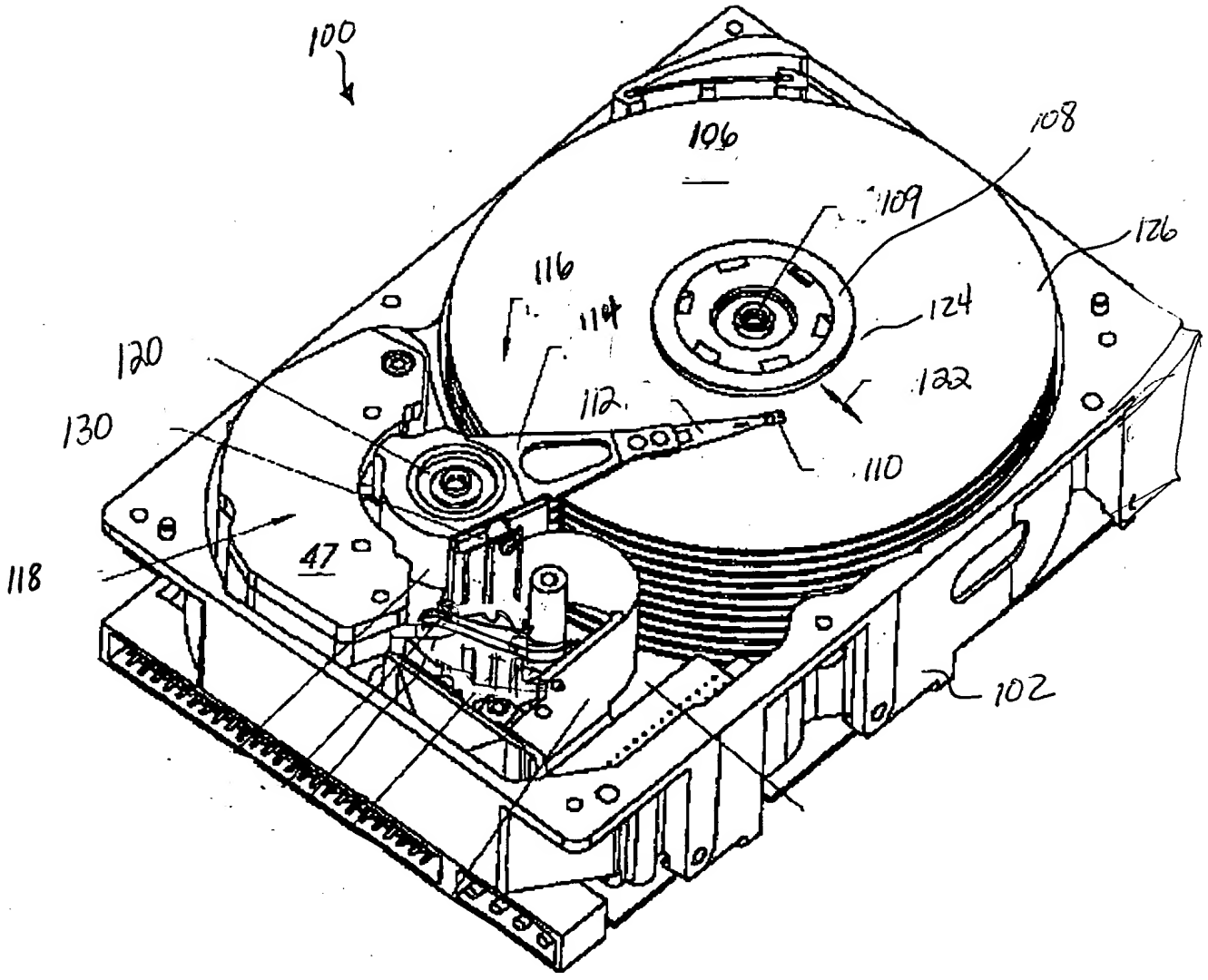
Fig. 1



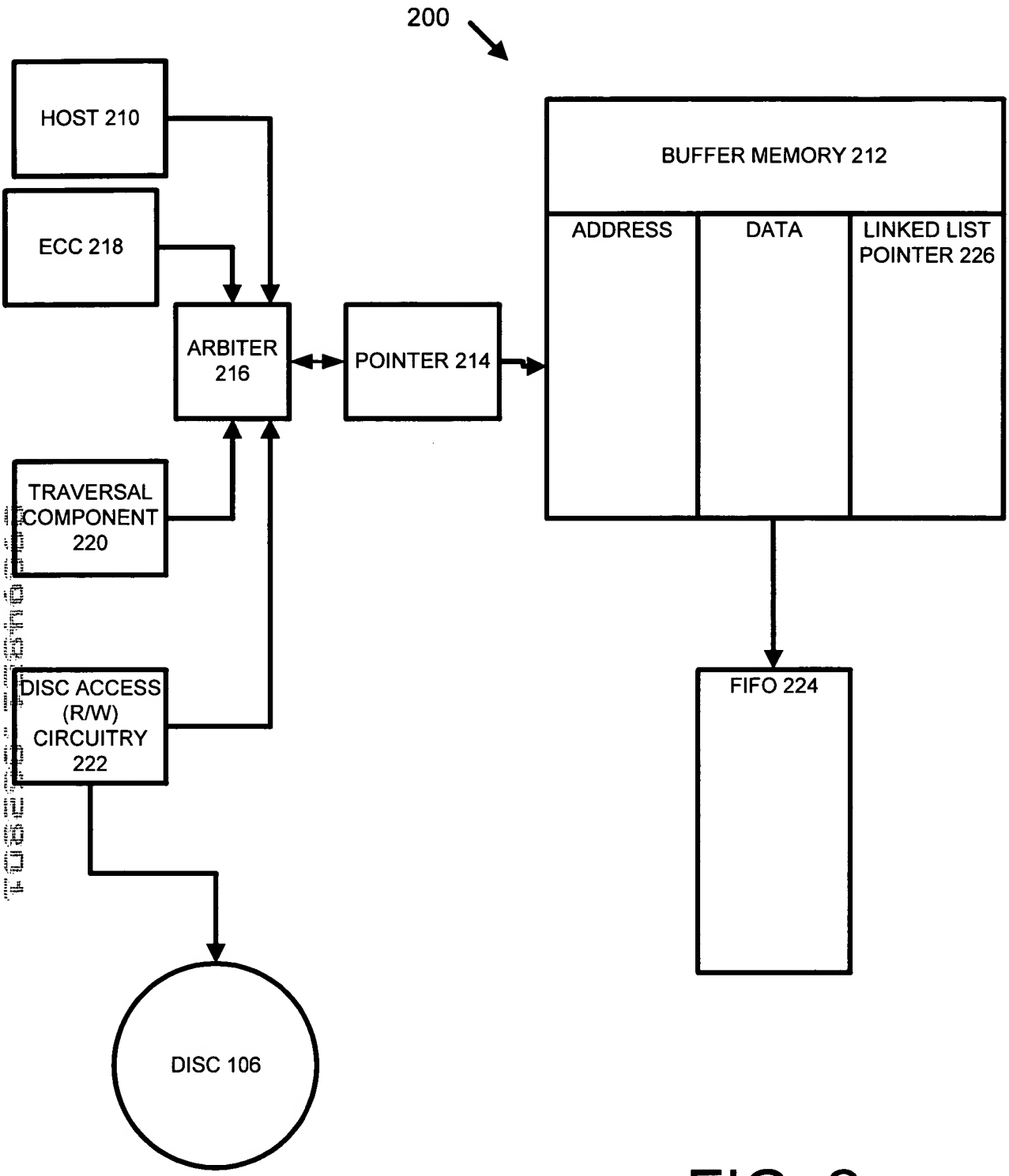

200
HOST 210
ECC 218
ARBITER 216
POINTER 214
BUFFER MEMORY 212
ADDRESS
DATA
LINKED LIST POINTER 226
TRAVERSAL COMPONENT 220
DISC ACCESS (R/W) CIRCUITRY 222
FIFO 224
DISC 106

FIG. 2

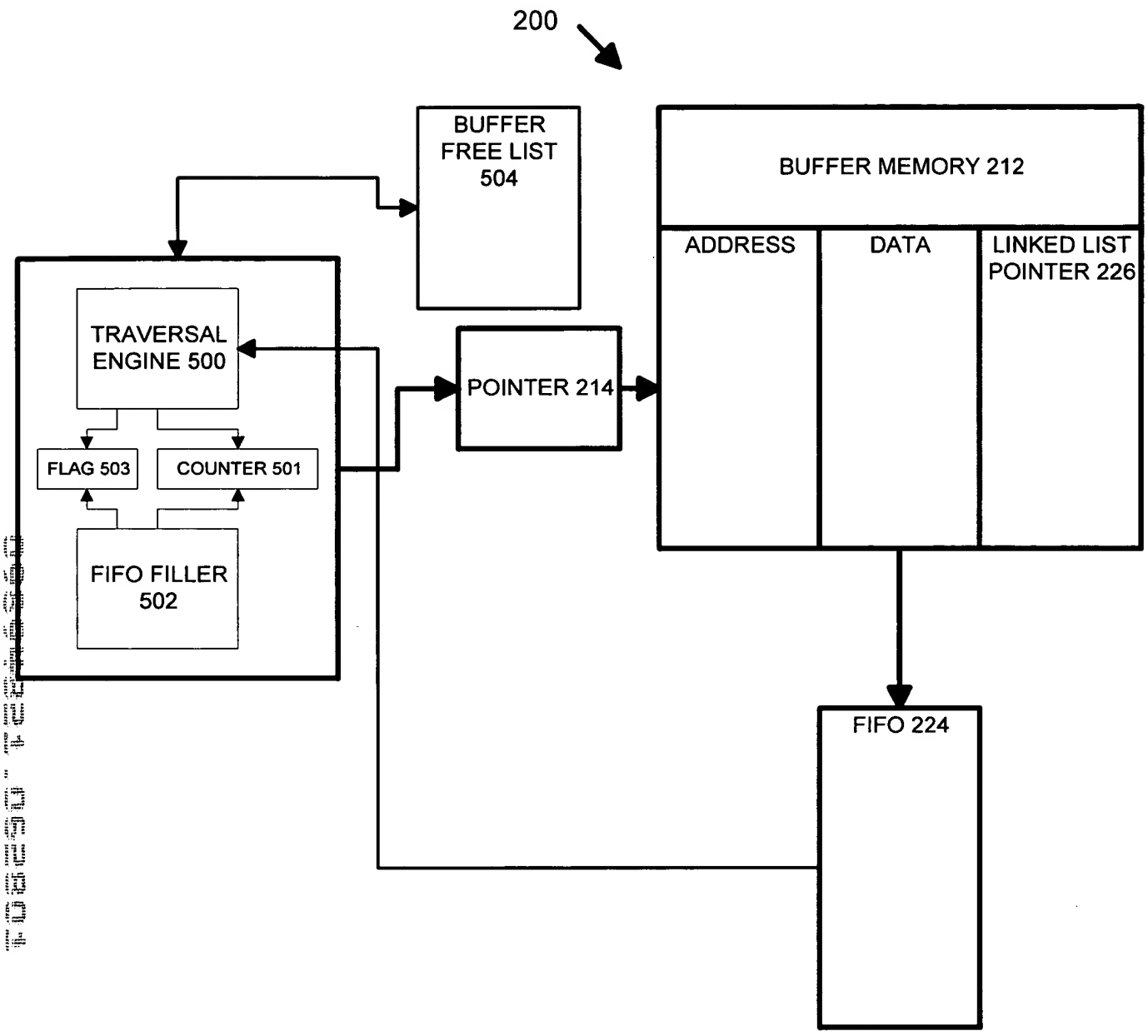

200
BUFFER FREE LIST 504
BUFFER MEMORY 212
ADDRESS
DATA
LINKED LIST POINTER 226
TRAVERSAL ENGINE 500
POINTER 214
FLAG 503
COUNTER 501
FIFO FILLER 502
FIFO 224

FIG. 3

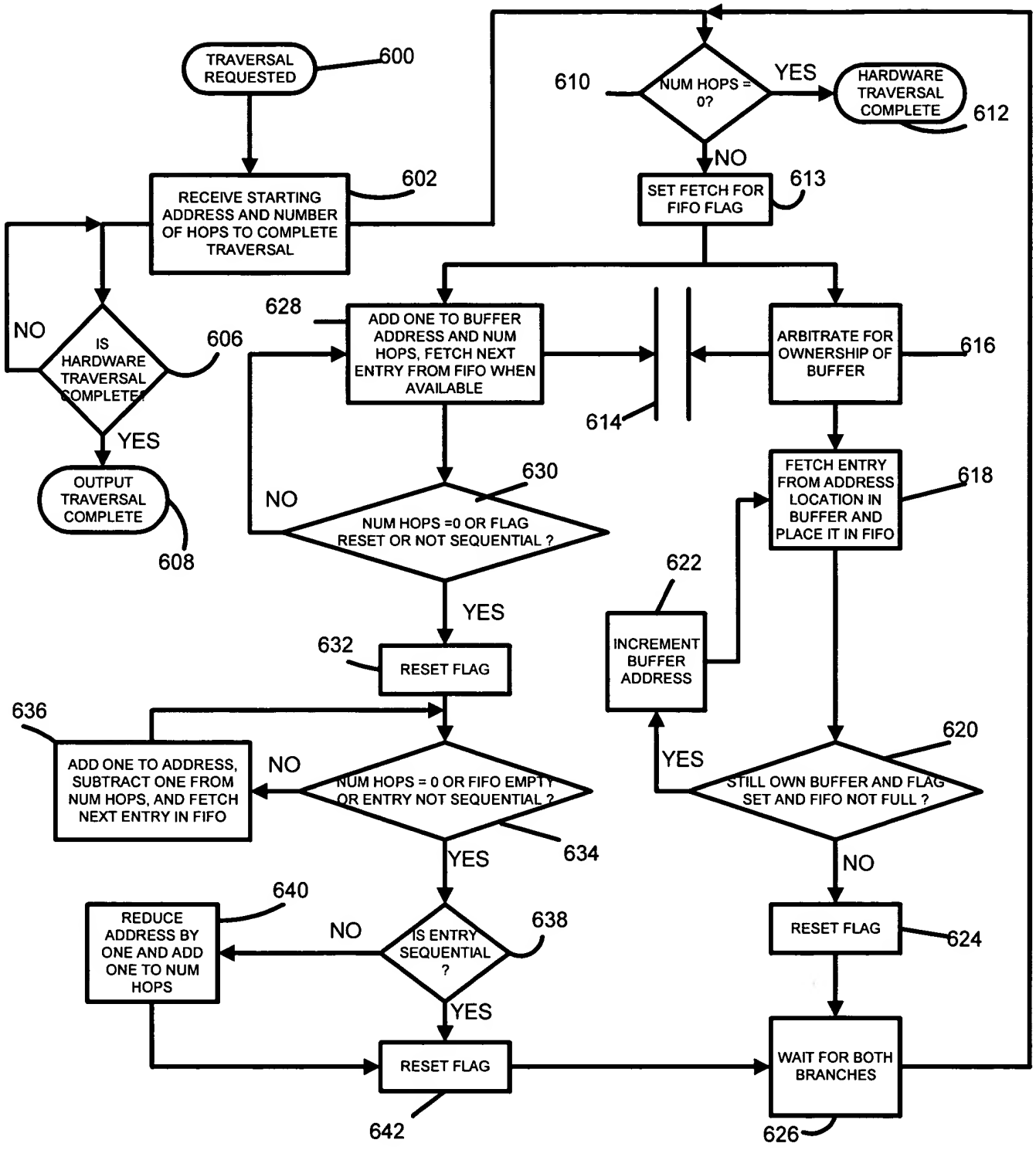

TRAVERSAL REQUESTED
600
RECEIVE STARTING ADDRESS AND NUMBER OF HOPS TO COMPLETE TRAVERSAL
602
IS HARDWARE TRAVERSAL COMPLETE?
606
NO
YES
OUTPUT TRAVERSAL COMPLETE
608
NUM HOPS = 0?
610
YES
HARDWARE TRAVERSAL COMPLETE
612
NO
SET FETCH FOR FIFO FLAG
613
614
ADD ONE TO BUFFER ADDRESS AND NUM HOPS, FETCH NEXT ENTRY FROM FIFO WHEN AVAILABLE
628
ARBITRATE FOR OWNERSHIP OF BUFFER
616
NUM HOPS =0 OR FLAG RESET OR NOT SEQUENTIAL ?
630
NO
YES
RESET FLAG
632
FETCH ENTRY FROM ADDRESS LOCATION IN BUFFER AND PLACE IT IN FIFO
618
INCREMENT BUFFER ADDRESS
622
STILL OWN BUFFER AND FLAG SET AND FIFO NOT FULL ?
620
YES
NO
ADD ONE TO ADDRESS, SUBTRACT ONE FROM NUM HOPS, AND FETCH NEXT ENTRY IN FIFO
636
NUM HOPS = 0 OR FIFO EMPTY OR ENTRY NOT SEQUENTIAL ?
634
NO
YES
REDUCE ADDRESS BY ONE AND ADD ONE TO NUM HOPS
640
IS ENTRY SEQUENTIAL ?
638
NO
YES
RESET FLAG
642
RESET FLAG
624
WAIT FOR BOTH BRANCHES
626

FIG. 4